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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/823,380 | 04/13/2004 | Charles G. Sota JR. | AJGC122141 | 3361 |

26389 7590 04/20/2006

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| EXAMINER |
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CASAREGOLA, LOUIS J

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| ART UNIT | PAPER NUMBER |
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3746

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,380

Applicant(s)

SOTA ET AL.

Examiner

Louis J. Casaregola

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,12,13,15,16,24 is/are rejected.
- 7) ☒ Claim(s) 3,5-11,14,17-23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Objections To Claims

Claim 24 is objected to under 37 CFR 1.75(a) for the following reason:

In claim 24, line 7, "the plug" lacks proper antecedent basis. Note that while the claim is drawn to a plug nozzle, the plug itself is never positively recited.

Claim Rejections - 35 USC 102

Claims 1, 2, 4, 12, 13, 15 and 16 are rejected under 35 USC 102(b) as being anticipated by Hickerson.

All limitations of the claimed rocket nozzle thrust vector control system are met by prior art nozzle control systems of the type disclosed by Hickerson. Attention is called to Hickerson's Figures 3 and 4; note rocket engine housing elements 10 and 11, nozzle throat 14, and plug 58. Note also that the broadly claimed thrust diverter reads on element 30 along with its related mechanical linkage. Element 30 can be moved (tilted) relative to the engine housing and throat, which causes plug 58 to move from its Figure 3 to its Figure 4 position and thereby changes the angle of the thrust vector. It is additionally pointed out that the throat area variation between the top and bottom of the nozzle in its Figure 4 position will necessarily produce an asymmetrical velocity profile,

and since velocity and pressure are functionally related, this will result in an asymmetrical pressure distribution as described in the present claims.

Claim 24 is rejected under 35 USC 102(b) as being anticipated by Parilla.

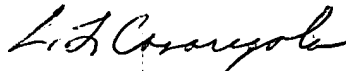
The various broadly claimed means comprising the claimed plug nozzle control system are all present in prior art nozzle systems of the type disclosed by Parilla. Attention is called for example to Parilla's Figures 1-4; note plug 21/211 along with related nozzle components (means for generating thrust), cowl 28 (means for controlling the thrust), and actuators 64/203 along with related linkage for tilting the cowl as described in column 6, lines 63-70 (means for thrust vectoring). Note also that cowl 28 can be positioned to achieve thrust termination as described in column 6 lines 39-42, and this position corresponds to the full off position of the claimed means for controlling thrust.

Allowable Subject Matter

Claim 25 is allowed. Claims 3, 5-11, 14 and 17-23 also contain allowable subject matter but are objected to as depending from rejected parent claims. If rewritten in independent from, 3, 5-11, 14 and 17-23 will be allowed.

Additional References

Carter and Brees et al are cited as disclosing further examples of prior art plug nozzle systems which provide thrust vectoring.



L. J. Casaregola
571-272-4826 (M-F; 7:30-4:00)
571-273-8300 FAX
April 17, 2006

If repeated attempts to reach the examiner by telephone are unsuccessful, the art unit supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Information regarding the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR, and status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).